Title: A Year in Review

Brief Overview:

Students will design a layout for a yearbook page to represent their team or class. They will justify their layout based upon cost analysis and geometric measurement in a letter to the chairperson of the yearbook committee.

Links to Standards:

- **Mathematics as Problem Solving**
  Students will demonstrate problem solving skills by determining the most appropriate layout for their yearbook page.

- **Mathematics as Communication**
  Students will communicate their justification for choices in their group's layout in the form of a letter to the chairman of the yearbook committee. Students will discuss decisions and opinions with group members in their compilation of their layout.

- **Mathematics as Reasoning**
  Students will make decisions regarding appropriateness of material to be included in the team page.

- **Mathematical Connections**
  Students will demonstrate their ability to use their calculations of the area for text and graphics to decide an appropriate design. They will use their letter writing skills.

- **Number and Number Relationships**
  Students will demonstrate their ability to compute the cost associated with the area of their chosen design for their team page.

- **Computation and Estimation**
  Students will demonstrate their ability to estimate and compute area and perimeter of various rectangles. They will determine cost for the rectangles measured.

- **Geometry**
  Students will demonstrate their ability to determine perimeter and area of rectangles and will recognize various geometric terms.

- **Measurement**
  Students will use rulers having customary units to find the dimensions of the templates.

Grade/Level:

6-8

Duration/Length:

4-5 days

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

- Familiarity with basic geometric terms including perimeter and area
- Ability to measure distances using customary forms of measurement
- Ability to multiply mixed numbers
- Demonstrate proper letter format

Objectives:

Students will:

- identify the relationship between perimeter and area of rectangles and apply that to designing a page for the school yearbook.
- estimate and compute the area of various rectangles.
- compute cost of a yearbook page based upon the prices per in^2 of headline, text, and graphics.
- utilize letter writing skills in a persuasive form.

Materials/Resources/Printed Materials:

- Worksheets 1-5
- rulers
- school yearbooks
- calculators

Development/Procedures:

Day 1:

- Complete activity associating area and perimeter of rectangles and discuss.
- Bring in examples of yearbooks from home for homework.

Day 2:

- Complete Worksheet 1.
- Introduce the "Year in Review" activity by leafing through yearbooks to discover various page layouts. Have the students choose a page from the yearbook they like. Students should discuss reason for choosing this page.
- On the overhead, as a class, use templates to create possible layout pages. Discuss the pros and cons of each layout created.
- Have each student use worksheet 2 to create their own layout for homework. Students should label the layout with the choice of template and one of the following; headline, text, or picture.

Day 3:

- In partner or small groups, have students evaluate layouts completed for homework using the criteria established on worksheet 2.
- Complete Worksheet 3 using the individual layout.
- Assist students in completing number 4 on worksheet 3 for homework.

Day 4:

- Complete worksheet 4 together. Use 1/2 inch graph paper to assist students with counting the number of characters necessary for top of worksheet.
- Complete final layout by including specific labels.
- Complete Worksheet 5(Writing Prompt). What is not finished will be done that evening.

Day 5:

- Collect completed work from Day 4 and summarize.

Performance Assessment:

Students assessment will be based upon their rough copy of the layout, Worksheet 3, final copy, and writing prompt. A rubric and scoring key have been provided at the end of the learning unit.

Extension/Follow Up:

1. Investigate the possibilities of actually including a team page in the school's yearbook.

2. Have students estimate additional cost of including team pages in the yearbook and discuss if it is economically feasible. Decide the price increase necessary for such an addition.

3. Chart the cost of each student's layout and determine some statistical data including mean, median, mode and range. Possibly put this information on a box and whisker or scatter plot.

4. Develop a lesson on the golden ratio and identify the templates which satisfy this ratio.

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A Year In Review
Worksheet #1

Name _____
Date_____

1. Construct a 1 X 1 inch square below.

2. Estimate the total area of this sheet of paper.
   MY ESTIMATE IS _____in^2.

   What is the actual area of this sheet of paper?

   THE ACTUAL AREA IS _____in^2.

3. Draw a 3/4" border on the back of this paper.

4. Since the page must include a 3/4 inch border around all sides, how much space can you actually use on the page?
   MY ESTIMATE IS _____in^2.

   THE ACTUAL IS _____ in^2.

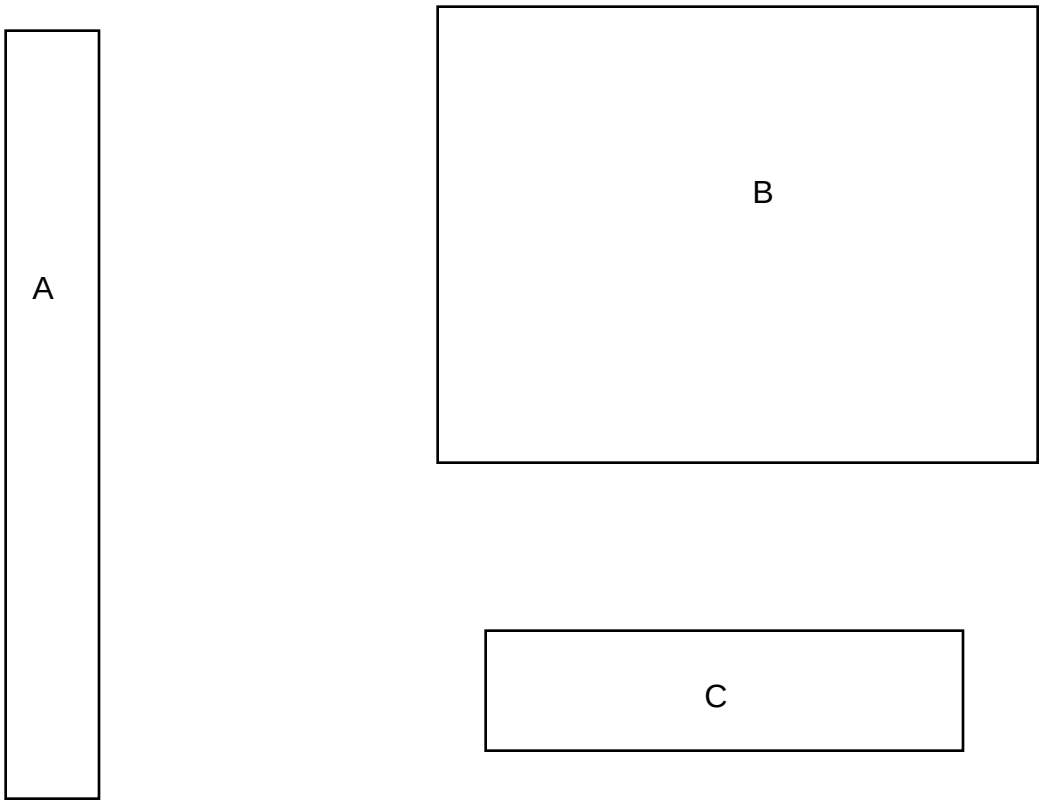
A Year in Review Name_____
Worksheet #2

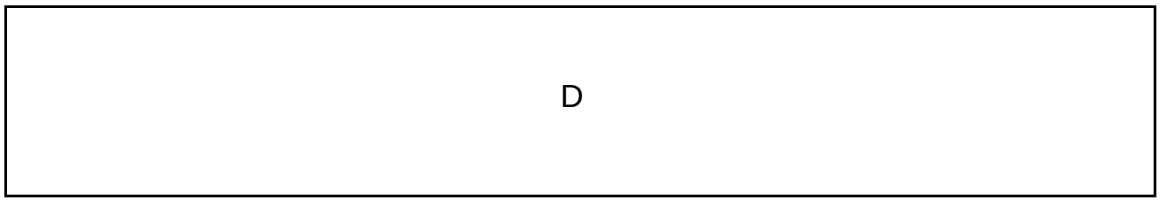
You are being asked to create a page layout for this year's yearbook. You will need to meet the guidelines below. Use bordered page created on worksheet 1 and the templates provided below. Use a ruler, straight edge, or trace the templates.

THE FORMAT

Each page must include:

* at least one headline, text, and picture template
* no more than 2 inches of space between each template selection
* a border on the page of 3/4 inch
* each template chosen must be labeled as text, headline, picture, or colored picture

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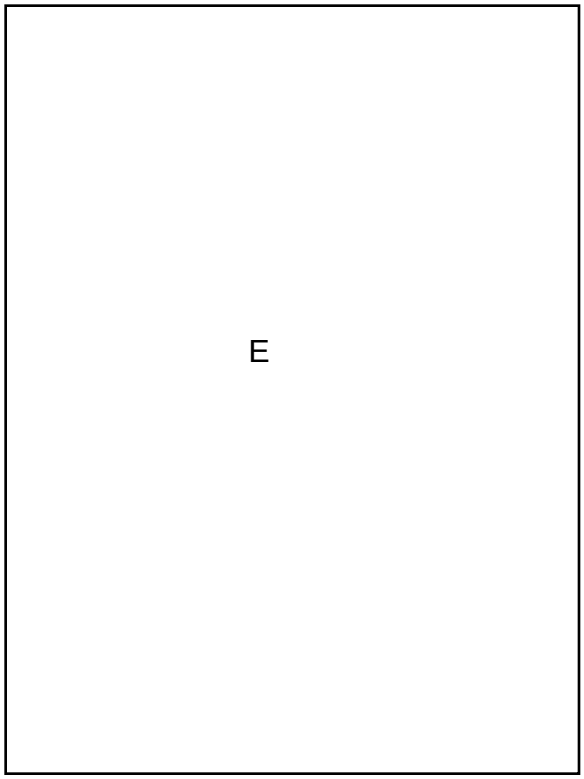
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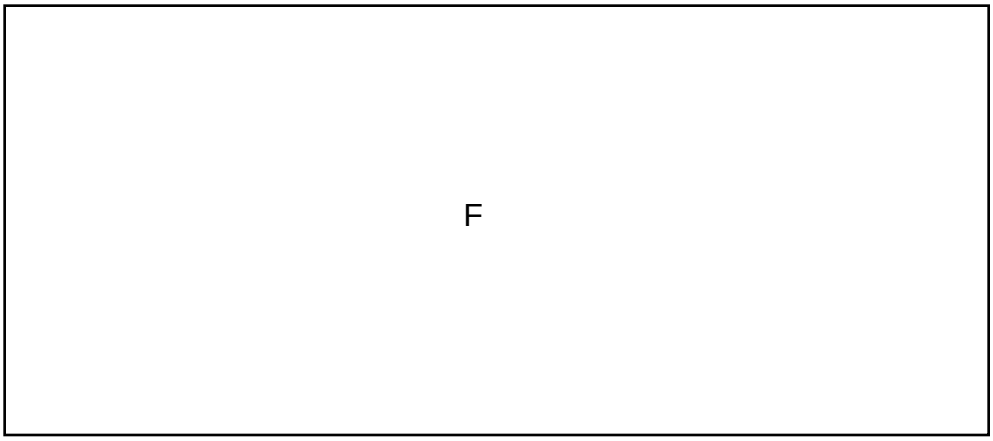
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A Year In Review Name_____
Worksheet #3

Each person involved with creating the yearbook must analyze the cost associated with a page's layout. You will need to calculate the cost associated with the layout you have created.

DRILL

1. The company our school has chosen charges by the number of square inches the templates use in the layout. What things must you calculate to determine the price?

2. Look at worksheet #2. Use the ESTIMATE column below to rank the rectangles seen on worksheet #2. The number 1 represents the smallest area. The number 9 represents the largest area.

CLASS WORK

3. Complete the **length, width, and area columns** in the chart below. You will need to measure the templates to the nearest 1/8 inch.

Estimate	Template	Length	Width	Area (sq in)
	A			
	B			
	C			
	D			
	E			
	F			

4. Complete the chart below using the information you just calculated and the layout you created on worksheet #1. In order to calculate cost, use the criteria below the chart.

Template	Used as a	Area in sq.	Cost for

* Headline templates cost $0.20 a square inch.
* Picture templates cost $0.35 a square inch for black and white copies and $0.38 for color copies.
* Text templates cost $0.18 a square inch.

A Year in Review
Worksheet #4

Name_____
Date_____

SPACING

The letters in a headline are approximately 1/2 inch squared. Use this information and worksheet 2 to determine the number of characters which would fit in each of the templates.

A= _____ characters

B= _____ characters

C= _____ characters

D= _____ characters

E= _____ characters

F= _____ characters

Using the information above, reevaluate the layout created on worksheet #1. Then create a final layout to be submitted to the yearbook editor. Your final layout should include at least one headline, text, and picture template. Determine what you want your headline to be. Keep the information gained above in mind when making headline choices.

ex. TEAM 7, THE GREATEST!

There are 21 total characters in this headline.

Be as specific as possible in labeling your choices. You should include the template chosen, the use of the template (i.e. headline, text, picture), and what it will be used for.

ex., Template A chosen as text, “Fun at the dance.”

A Year In Review Name_____
Worksheet #5

Writing Prompt

Now that you have created a layout, you need to convince the editor to include it in this year's yearbook. Write a persuasive **letter** to the editor. Give reasons for including a team page. Prove that your layout is the best selection. Be sure to use correct spelling and punctuation.

Before writing, think about reasons to include a team page. Think about why you chose one template over another. Think about the reasons for deciding on the number of pictures, headlines, and text boxes. Be sure to include sentences convincing the editor your page satisfies the size requirements. Think about the cost associated with the layout you chose. Remember, the less the cost, the better. Use numerical data to support your sentences.

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Scoring Key- Rough Draft

Points	Criteria
5	completion of rough draft layout
3	attempted layout
0	no attempt

Scoring Key- Worksheet 3 (Individual Cost Sheet)

	2 points	**1 point**	**0 points**
Worksheet completed	----------	attempted	---------- less than half complete
Measurements accurate	-------	most correct	---------- most incorrect
Areas accurate	----------	most correct	---------- most incorrect
Costs accurate	----------	most correct	---------- most incorrect
Characters accurate	----------	most correct	---------- most incorrect

Total possible points: 10

Scoring Key- Final Page Layout

1 point possible for each below:

at least one headline template
at least one text template
at least one picture template
page layout has a margin
margin is 3/4 in.
templates have no more than 2 inches of space between them
neatly completed
at least three templates
labeled templates
esthetically pleasing

A Year in Review

Scoring Rubric
Writing Prompt

Points	Criteria
4	Student uses appropriate letter format; proper spelling and writing mechanics. Reasons are given for implementing a team page in the yearbook, and there is proper support to justify their layout selections. Numerical data is utilized in their analysis. The student demonstrates sound reasoning and a clear mastery of the assignment.
3	Student uses appropriate letter format however has minor errors in spelling and mechanics. Reasons for team page are implemented and numerical support is given. Student shows an understanding of the assignment however does not offer sound reasoning in their justification.
2	Student has several errors in spelling, mechanics, and format. Ideas for the team page and template choices are given, however they are not justified. Cost is presented. Little support is given for its effect on their decision.
1	Student does not use correct letter format and has multiple errors in spelling and mechanics. Little explanation is given for; reason for team page, template choices, and cost.
0	Student does not use letter format and has multiple errors in mechanics. Ideas are not presented or developed. Assignment is in-complete.

A Year In Review Name_____
Worksheet #3

Each person involved with creating the yearbook must analyze the cost associated with a page's layout. You will need to calculate the cost associated with the layout you have created.

DRILL

1. The company our school has chosen charges by the number of square inches the templates use in the layout. What things must you calculate to determine the price?

2. Look at worksheet #2. Use the ESTIMATE column below to rank the rectangles seen on worksheet #2. The number 1 represents the smallest area. The number 9 represents the largest area.

CLASS WORK

3. Complete the **length, width, and area columns** in the chart below. You will need to measure the templates to the nearest 1/8 inch.

Estimate	Template	Length	Width	Area (sq in)
	A	4	0.5	2
	B	3.125	2.375	7 27/64
	C	2.5	0.625	1 9/16
	D	6	1	6
	E	3	4	12
	F	5.125	2.25	11 17/32

A Year in Review
Worksheet #4

Name_____
Date_____

SPACING

The letters in a headline are approximately 1/2 inch squared. Use this information and worksheet 2 to determine the number of characters which would fit in each of the templates.

A= ___**8**_____ characters

B= __**24**_____ characters

C= ___**5**_____ characters

D= __**12**_____ characters

E= __**48**_____ characters

F= __**40**_____characters

Using the information above, reevaluate the layout created on worksheet #1. Then create a final layout to be submitted to the yearbook editor. Your final layout should include at least one headline, text, and picture template. Determine what you want your headline to be. Keep the information gained above in mind when making headline choices.

ex. TEAM 7, THE GREATEST!

There are 21 total characters in this headline.

Be as specific as possible in labeling your choices. You should include the template chosen, the use of the template (i.e. headline, text, picture), and what it will be used for.

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